UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

California Water Supply Outlook Report

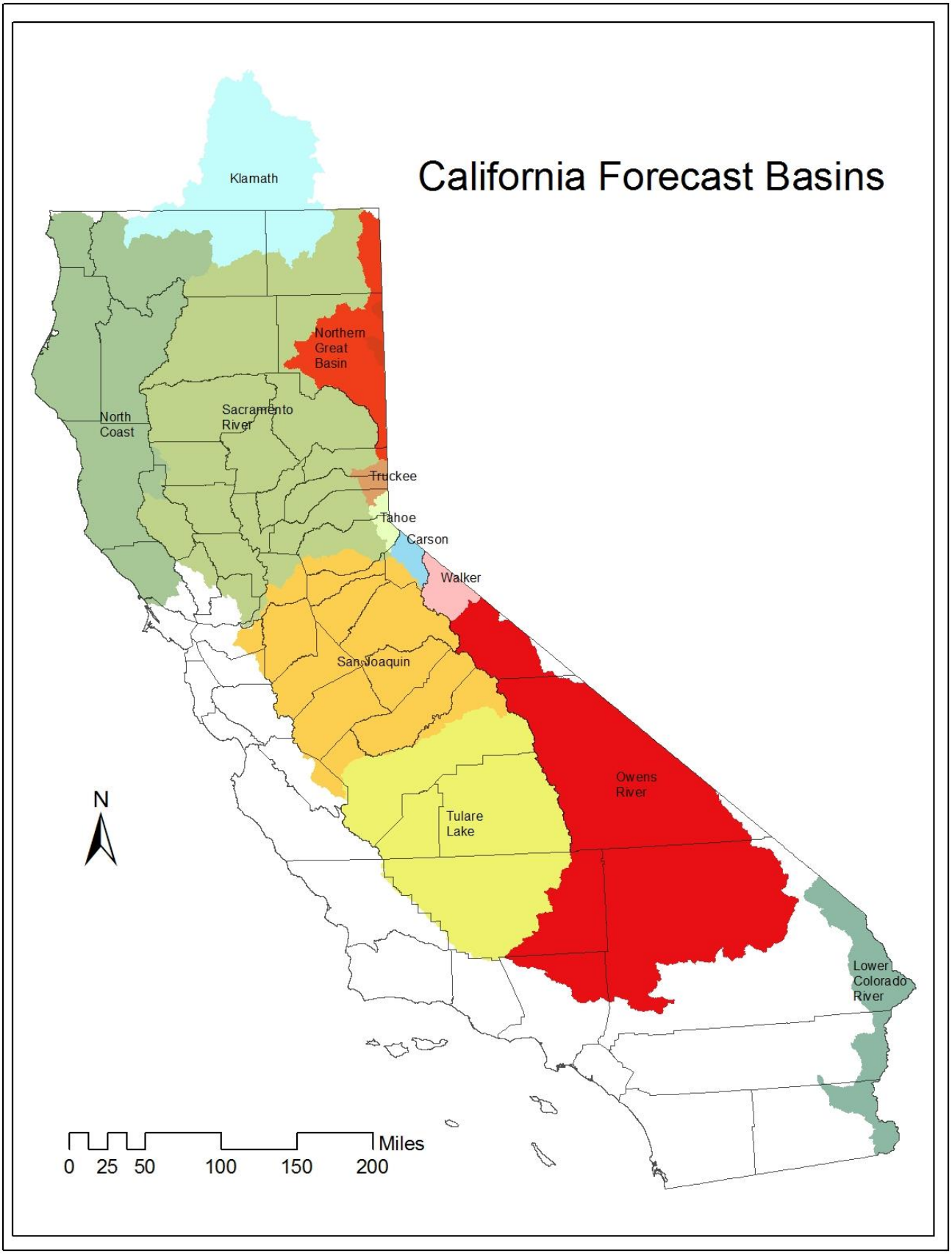
February 1, 2018

90.5” on February 2, 2017 at Phillips Station

13.5” on February 1, 2018 at Phillips Station

Contents

Cover photos: Frank Gehrke Chief of the California Cooperative Snow Surveys Program, and his team measure snowpack at Phillips Station in February 2017 (top), and again in February 2018 (bottom). Snow depth at this site was 90.5 inches on February 2, 2017. One year later, during DWR's most recent survey, the snow depth measured a meager 13.5 inches. Photos by Dale Kolke /California Department of Water Resources


California Forecast Basins
Klamath
Northern Great Basin
North Coast
Sacramento River
Truckee
Tahoe
Carson
Walker
San Joaquin
Owens River
Tulare Lake
Lower Colorado River
N
0 25 50 100 150 200
Miles

STATE OF CALIFORNIA GENERAL OUTLOOK
February, 2018

SUMMARY
In terms of snowpack and precipitation, January saw an improvement over December, but not by much. Most of the storms passed through in the early part of the month, especially in the south, only to be followed by a return of unseasonably warm temperatures and blue (or foggy) skies. For the water year, precipitation and especially snowpack remain well below normal. With almost half the state experiencing at least moderate drought conditions, carryover storage from last year remains California's "ace in the hole."

SNOWPACK
Between December 31, 2017 and January 31, 2018, reported snowpack in the Northern, Central, and Southern Sierras inched up slightly, to 29-, 32-, and 26 percent of normal for this date, respectively. Continued warm, dry conditions in early February have already taken a toll, however; the statewide average snow water equivalent was down from 30 percent of normal at the beginning of the month, to 22 percent of normal on February 13.

More information is available online at http://cdec.water.ca.gov/snow/current/snow/index2.html.

PRECIPITATION
A few storms swept through the state in January, including one that dumped over half an inch in five minutes above Montecito in Santa Barbara County, triggering a debris flow that took the lives of over 20 people. On the whole, however, they didn't deliver enough rainfall to bring seasonal totals anywhere close to average. As of January 31, rainfall in the Northern Sierra (8-Station index), San Joaquin (5-Station index), and Tulare Basin (6-Station index) Regions, were 71-, 45-, and 31 percent of average for this date, respectively. To date, none of the reporting stations used to calculate the indices have received any significant rainfall, further suppressing regional averages to as low as 27 percent in the Tulare Basin.

More information is available online at http://cdec.water.ca.gov/snow_rain.html

RESERVOIRS
Reservoir storage remains relatively high throughout the state, with basinwide averages ranging from 66 percent on the Central Coast, to 177 percent in the North Lahontan region, for a statewide average still exceeding 100 percent. As of January 31, Lake Shasta, Don Pedro, and Pine Flat Reservoirs were at 110-, 121-, and 111 percent of average, respectively. Lake Powell storage remained steady at 69 percent of average, although forecast inflows between April and July have been revised downward to 42 percent of average.

More information is available online at http://cdec.water.ca.gov/snow/reservoir_ss.html.

STREAMFLOW
Forecasted flows for all reported streams all show below normal due to the lack of precipitation and low snowpack to date. The streamflow forecasts for the major basins in California are summarized below.

Sacramento River Basin

Forecasted streamflow volumes for this April through July are all below average. Compared to January, forecasted averages for NWS sites declined 10- to over 20 percent.

SACRAMENTO RIVER BASIN
Streamflow Forecasts - February 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point / Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Sacramento R at Shasta (DWR)							
APR-JUL			165	56			295
Sacramento R at Shasta (NWS)							
APR-JUL	78	107	155	50	247	350	312
McCloud R ab Shasta (DWR)							
APR-JUL			340	90			379
McCloud R ab Shasta (NWS)							
APR-JUL	210	244	275	71	333	407	385
Pit R at Shasta Lk (DWR)							
APR-JUL			910	89			1020
Pit R at Shasta Lk (NWS)							
APR-JUL	526	562	621	61	807	972	1013
Inflow to Shasta Lk (DWR)							
APR-JUL	1160		1440	82		1750	1756
OCT-SEP	3590		4190	72		4850	5831
Inflow to Shasta Lk (NWS)							
APR-JUL	905	1029	1257	70	1668	2218	1803
Sacramento R nr Red Bluff (DWR)							
APR-JUL	1340		1720	71		2130	2421
OCT-SEP	4630		5500	64		6440	8544
Sacramento R nr Red Bluff (NWS)							
APR-JUL	1259	1411	1723	70	2378	3220	2479
Feather R at Lk Almanor (DWR)							
APR-JUL			190	57			333
NF Feather R at Pulga (DWR)							
APR-JUL			500	49			1028
NF Feather R nr Prattville (NWS)							
APR-JUL	110	118	154	46	205	241	333
MF Feather R nr Clio (DWR)							
APR-JUL			35	41			86
SF Feather R at Ponderosa Dam (DWR)							
APR-JUL			45	41			110

Sacramento River Basin (cont'd)

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point / Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Inflow to Oroville Res (DWR)							
APR-JUL	600		880	52		1180	1704
OCT-SEP	2190		2820	64		3500	4407
Inflow to Oroville Res (NWS)							
APR-JUL	389	467	718	42	1070	1631	1701
N Yuba R bl Goodyears Bar (DWR)							
APR-JUL			160	57			279
N Yuba R bl Goodyears Bar (NWS)							
APR-JUL	67	86	137	50	199	267	273
Inflow Jackson Mdws & Bowman Res (DWR)							
APR-JUL			65	58			112
S Yuba R nr Langs Crossing (DWR)							
APR-JUL			130	56			233
Yuba R at Smartville (DWR)							
APR-JUL	410		580	60		810	968
OCT-SEP	1590		1590	70		2030	2268
Yuba R at Smartville (NWS)							
APR-JUL	250	303	499	51	785	1064	981
NF American R at N FK Dam (DWR)							
APR-JUL			140	53			262
MF American R nr Auburn (DWR)							
APR-JUL			310	59			522
MF American R nr Auburn (NWS)							
APR-JUL	111	154	227	46	347	507	490
Inflow to Union Valley Res (NWS)							
APR-JUL	18.0	26	39	40	64	84	98
Silver Ck bl Camino Div. Dam (DWR)							
APR-JUL			90	52			173
Silver Ck bl Camino Div. Dam (NWS)							
APR-JUL	37	50	74	47	120	161	158
Inflow to Folsom Res (DWR)							
APR-JUL	460		670	56		950	1199
OCT-SEP	1350		1750	67		2280	2626
Inflow to Folsom Res (NWS)							
APR-JUL	236	341	523	43	834	1250	1232

The average is based on the 1981-2010 reference period.

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversion.

San Joaquin River Basin

Forecasted streamflow volumes for this April through July are all below average. Compared to January, forecasted averages for NWS sites declined 11- to 30 percent.

SAN JOAQUIN RIVER BASIN
Streamflow Forecasts - February 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point / Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Cosumnes R at Michigan Bar (DWR)							
APR-JUL	40		60	48		100	125
OCT-SEP	140		195	52		300	379
Cosumnes R at Michigan Bar (NWS)							
APR-JUL	17.0	27	46	36	79	157	128
NF Mokelumne R nr West Point (DWR)							
APR-JUL			250	57			437
Inflow to Pardee Res (DWR)							
APR-JUL	210		270	59		370	457
OCT-SEP	400		490	66		640	748
Inflow to Pardee Res (NWS)							
APR-JUL	99	143	227	49	303	426	467
MF Stanislaus R bl Beardsley (DWR)							
APR-JUL			190	57			334
Inflow to New Melones Res (DWR)							
APR-JUL	300		370	54		490	682
Inflow to New Melones Resr (DWR)							
OCT-SEP	600		710	62		890	1149
Inflow to New Melones Res (NWS)							
APR-JUL	159	221	294	43	500	721	690
Cherry & Eleanor Cks, Hetch Hetchy (DWR)							
APR-JUL			190	60			315
Tuolumne R nr Hetch Hetchy (DWR)							
APR-JUL			370	61			604
Tuolumne R nr Hetch Hetchy (NWS)							
APR-JUL	201	252	306	51	446	560	596

San Joaquin River Basin (cont'd)

SAN JOAQUIN RIVER BASIN
Streamflow Forecasts - February 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point / Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Inflow to New Don Pedro Res (DWR)							
APR-JUL	590		720	60		940	1193
OCT-SEP	1040		1220	64		1530	1909
Inflow to New Don Pedro Res (NWS)							
APR-JUL	348	449	539	44	878	1238	1228
Merced R, Pohono Bridge Yosemite(DWR)							
APR-JUL			210	57			372
Merced R, Pohono Bridge Yosemite (NWS)							
APR-JUL	101	130	176	46	278	390	385
Inflow to Lake McClure (NWS)							
APR-JUL	126	166	236	37	424	648	642
San Joaquin R at Mammoth Pool (DWR)							
APR-JUL			580	57			1026
Big Ck bl Huntington Lk (DWR)							
APR-JUL			45	50			91
SF San Joaquin R nr Florence Lk (DWR)							
APR-JUL			120	60			201
Inflow to Millerton Lk (DWR)							
APR-JUL	520		680	55		860	1228
OCT-SEP	800		1010	56		1250	1793
Inflow to Millerton Lk (NWS)							
APR-JUL	255	331	488	39	906	1229	1258

The average is based on the 1981-2010 reference period.

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Tulare Lake Basin

Forecasted streamflow volumes for this April through July are all well below average.

TULARE LAKE BASIN
Streamflow Forecasts - February 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point / Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
NF Kings R nr Cliff Camp (DWR)							
APR-JUL			120	50			239
Inflow to Pine Flat Res (DWR)							
APR-JUL	470		640	53		810	1210
OCT-SEP	700		920	54		1140	1702
Inflow to Pine Flat Res (NWS)							
APR-JUL	267	322	505	41	821	1237	1231
Kaweah R at Terminus Res (DWR)							
APR-JUL	90		120	42		160	285
OCT-SEP	150		195	43		260	451
Kaweah R at Terminus Res (NWS)							
APR-JUL	44	61	101	35	200	328	288
Tule R at Success Res (DWR)							
APR-JUL	11.0		18.0	29		30	63
OCT-SEP	30		45	31		70	147
Tule R at Success Res (NWS)							
APR-JUL	7.0	10.0	17.0	27	34	64	63
Kern R nr Kernville (DWR)							
APR-JUL			190	50			384
Inflow to Isabella Res (DWR)							
APR-JUL	150		220	48		300	458
OCT-SEP	300		405	56		520	728
Inflow to Isabella Res (NWS)							
APR-JUL	72	93	135	30	221	348	454

The average is based on the 1981-2010 reference period.

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

North Coast Area Basin

Forecast streamflow volumes for this April through July are all less than 50% of average``````

NORTH COASTAL AREA
Streamflow Forecasts - February 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point / Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Trinity R at Lewiston (DWR)							
APR-JUL	200		300	47		420	639
OCT-SEP	500		690	51		920	1348
Inflow to Clair Engle Lk (NWS)							
APR-JUL	155	214	327	49	443	626	666
Scott R nr Fort Jones (NWS)							
APR-JUL	22	31	54	31	93	150	173

The average is based on the 1981-2010 reference period.

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Klamath Basin

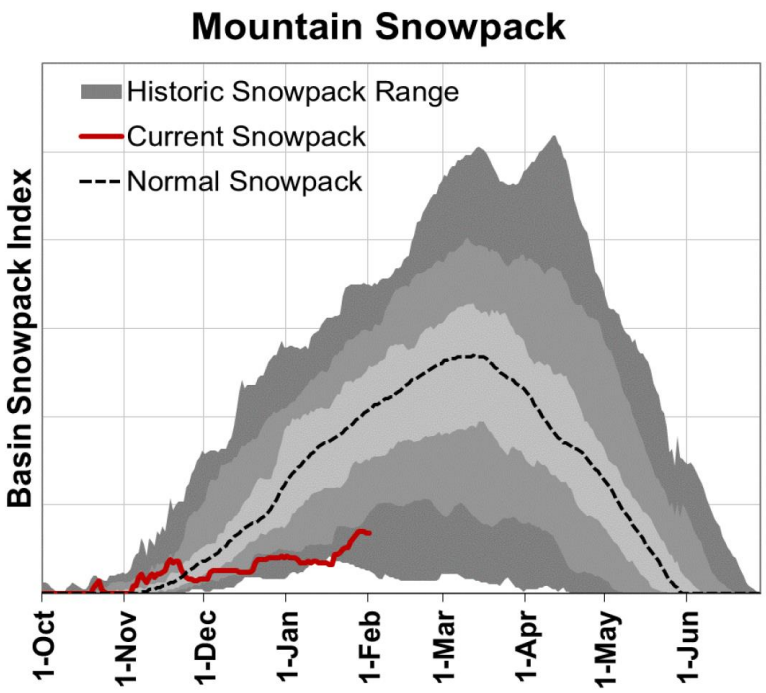
From the Water Supply Outlook Report for Oregon
(https://www.wcc.nrcs.usda.gov/ftpref/states/or/watersupply/2018/WSOR_2018_Feb.pdf):

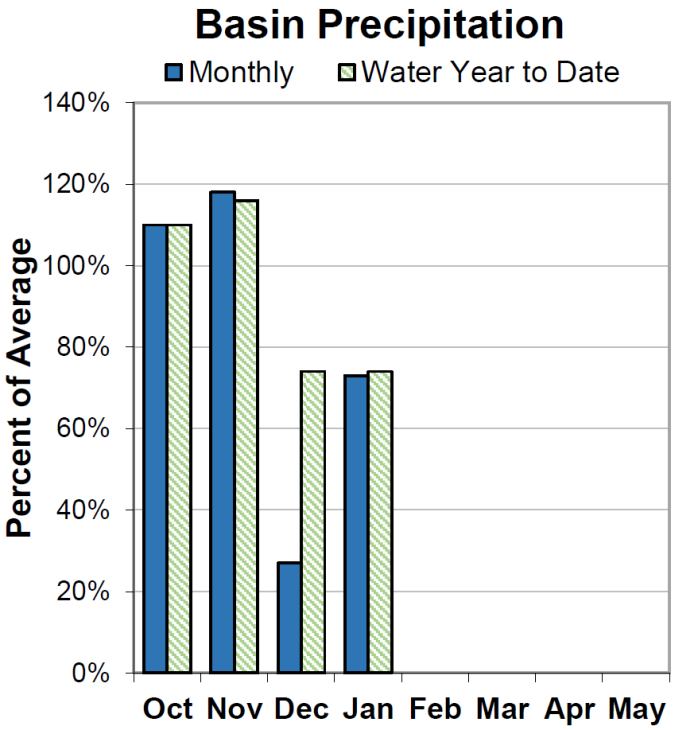
January precipitation was 73% of average. Precipitation since the beginning of the water year (October 1 - February 1) has been 74% of average.

As of February 1, the basin snowpack was 42% of normal. This is similar to last month when the snowpack was 43% of normal. Two long-term snow monitoring sites in the basin recorded the 2nd lowest measurement with at least 35 years of record.

Reservoir storage across the basin is currently above average. As of February 1, storage at major reservoirs in the basin ranges from 102% of average at Clear Lake to 141% of average at Gerber Reservoir.

The April through September streamflow forecasts in the basin range from 23% to 61% of average. Overall, forecasts decreased significantly from last month's report. Water managers in the basin should prepare for significantly reduced water supplies in the coming summer if conditions do not improve.





Klamath Basin (cont'd)

KLAMATH BASIN
Streamflow Forecasts - February 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point / Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Gerber Res Inflow (2)							
FEB-JUL	2.2	7.9	13.8	34	21	35	41
APR-SEP	0.0	9.9	3.3	23	7.4	16.4	14.4
Sprague R nr Chiloquin							
FEB-JUL	70	109	141	48	177	235	295
FEB-SEP	82	124	158	49	196	260	320
APR-JUL	40	65	85	45	108	146	188
APR-SEP	52	80	102	49	127	168	210
Williamson R bl Sprague R							
FEB-JUL	115	210	270	57	335	425	475
FEB-SEP	160	260	325	61	390	490	530
APR-JUL	57	119	160	55	205	265	295
APR-SEP	101	169	215	61	260	330	355
Upper Klamath Lake Inflow							
FEB-JUL	130	330	420	58	510	710	720
FEB-SEP	164	380	480	60	580	800	800
APR-JUL	35	156	210	53	265	390	400
APR-SEP	70	210	270	56	335	470	480

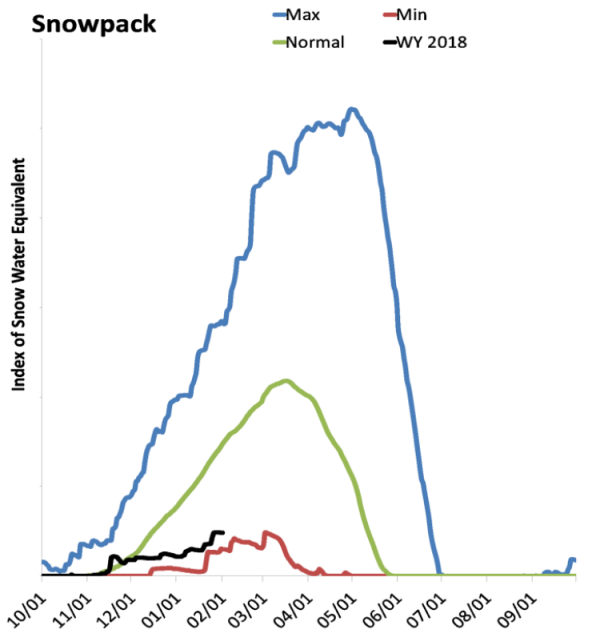
The average is based on the 1981-2010 reference period.

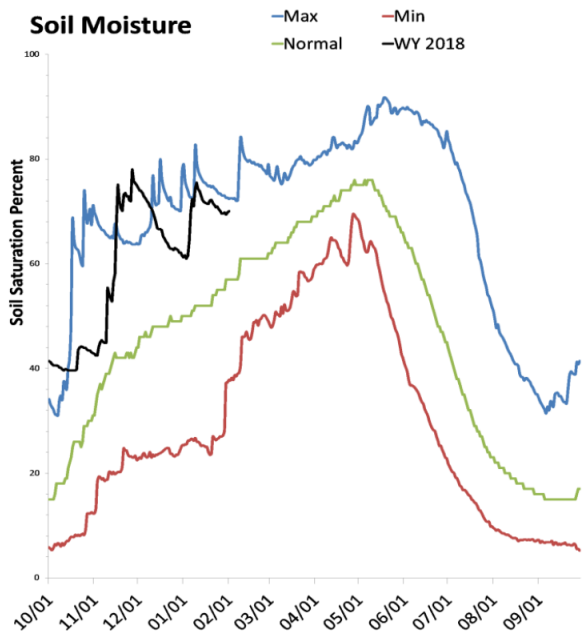
1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

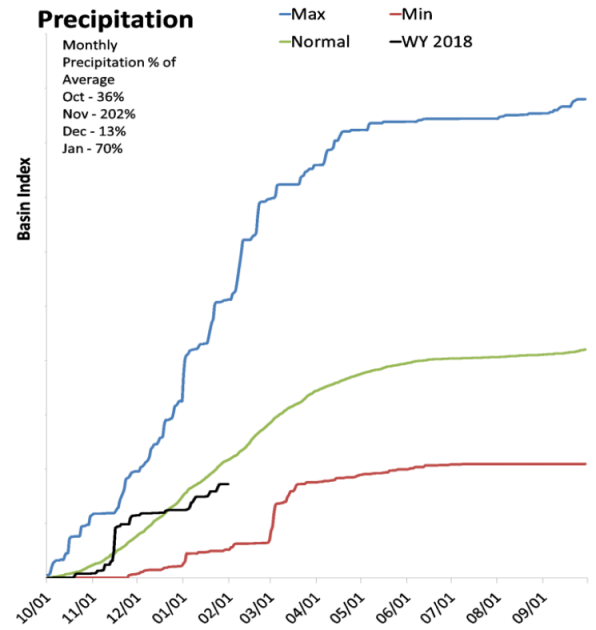
Lake Tahoe Basin

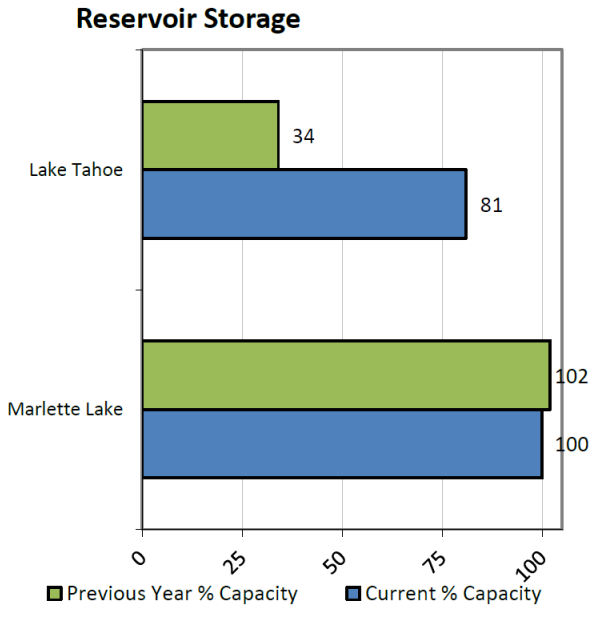
From the Water Supply Outlook Report for Nevada
(https://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/):

Snowpack in the Lake Tahoe Basin is much below normal at 26% of median, compared to 188% last year. Precipitation in January was below average, which brings the seasonal accumulation (Oct-Jan) to 80% of average. Soil moisture is at 70% saturation, compared to 72% last year. Lake Tahoe's water elevation is 6227.96 ft, which is 4.96 ft above the lake's natural rim and equals a storage of 604 thousand acre-feet. Last year its elevation was 6225.08 ft which equaled a storage of 253 thousand acre-feet. Lake Tahoe is forecast to rise 0.7 feet from October 1 to its highest elevation.









Lake Tahoe Basin (cont'd)

LAKE TAHOE BASIN
Streamflow Forecasts - February 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point / Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Marlette Lk Inflow (Acre-ft)							
MAR-JUL	-289.0	294	690	62	1086	1669	1110
APR-JUL	-174.0	241	500	60	841	1344	830
Lake Tahoe Rise (Gates Closed) (1)							
OCT-HIGH	-0.34	0.25	0.70	31	1.37	2.80	2.20
MAR-HIGH	0.11	0.24	0.60	35	0.96	1.56	1.73
APR-HIGH	0.04	0.24	0.40	31	0.66	1.22	1.31
Lake Tahoe Net Inflow							
MAR-JUL	11.4	34	64	34	110	187	189
APR-JUL	5.8	20	37	26	71	130	145

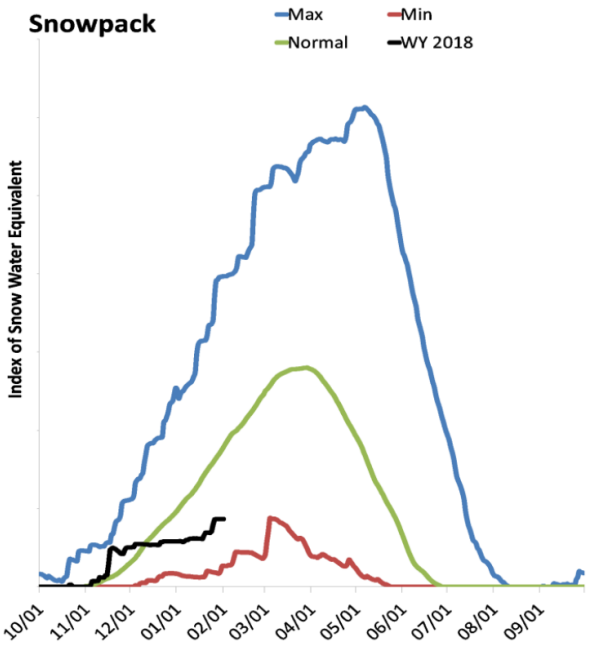
The average is based on the 1981-2010 reference period.

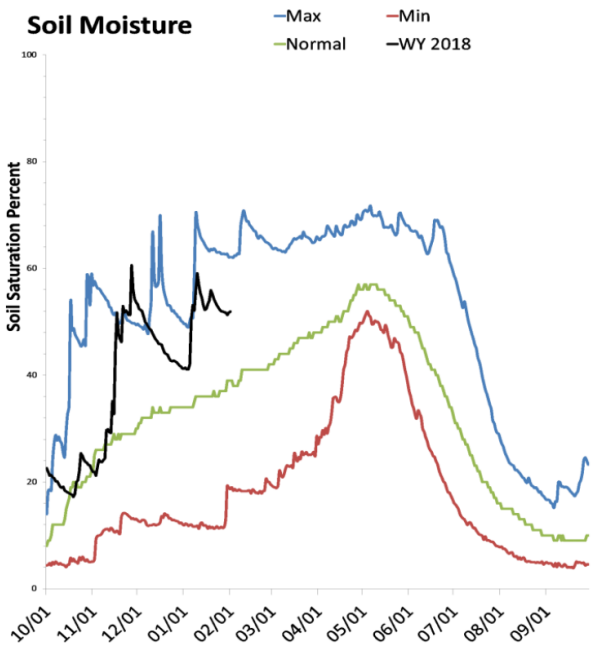
1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

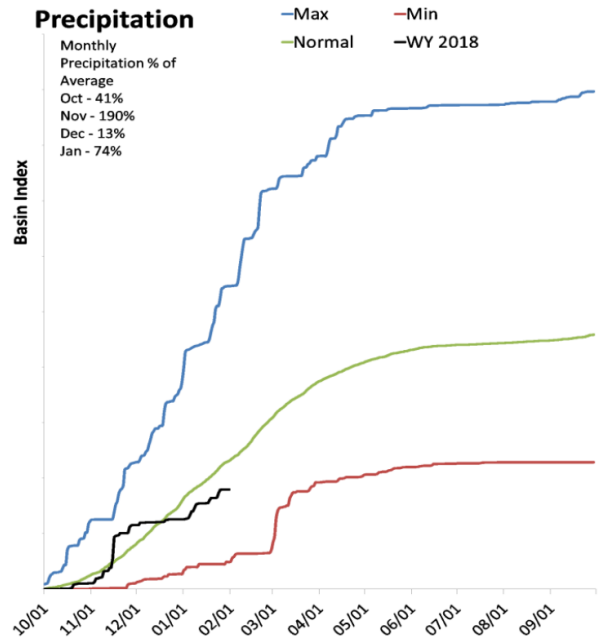
Truckee River Basin

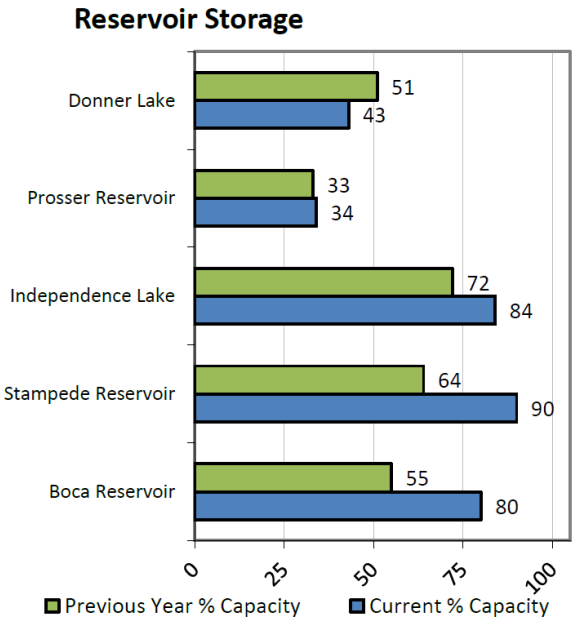
Including Information from the Water Supply Outlook Report for Nevada
(https://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/):

Snowpack in the Truckee River Basin is much below normal at 44% of median, compared to 176% last year. Precipitation in January was below average, which brings the seasonal accumulation (Oct-Jan) to 77% of average. Soil moisture is at 52% saturation, compared to 62% last year. Combined reservoir storage is 82% of capacity, compared to 60% last year. Forecast streamflow volumes (Mar-Jul) range from 25% to 57% of average.









Truckee River Basin (cont'd)

TRUCKEE RIVER BASIN
Streamflow Forecasts - February 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point / Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Donner Lake Inflow							
MAR-JUL	0.9	3.5	6.0	28	9.9	15.5	22
APR-JUL	0.5	1.4	4.4	25	7.7	12.6	17.8
Martis Ck Res Inflow							
MAR-JUL	0.26	1.02	4.6	36	8.2	13.4	12.9
APR-JUL	0.38	1.13	3.6	38	6.5	11.0	9.4
Prosser Ck Res Inflow							
MAR-JUL	3.0	11.2	19.0	38	27	38	51
APR-JUL	1.7	8.4	15.3	36	22	32	43
Independence Lk Inflow							
MAR-JUL	0.8	3.2	5.6	42	8.1	11.7	13.5
APR-JUL	0.8	2.8	4.9	41	7.1	10.2	12.1
Sagehen Ck nr Truckee							
MAR-JUL	1.2	1.7	2.2	34	2.8	4.0	6.4
APR-JUL	0.9	1.4	1.8	32	2.4	3.5	5.6
Stampede Res Local Inflow							
MAR-JUL	4.5	15.6	37	41	58	90	90
APR-JUL	5.4	17.6	31	41	50	79	77
L Truckee R ab Boca Resv							
MAR-JUL	7.0	27	48	45	69	100	107
APR-JUL	16.0	25	36	41	52	81	88
Boca Res Local Inflow							
MAR-JUL	0.38	0.75	2.4	25	4.1	6.3	9.4
APR-JUL	0.22	0.55	1.20	22	3.3	4.7	5.5
Truckee R ab Farad Sidewater							
MAR-JUL	11.3	47	72	57	97	133	126
APR-JUL	3.4	37	60	56	83	116	108
Truckee R at Farad							
MAR-JUL	30	116	175	57	234	320	307
APR-JUL	55	80	115	45	156	240	255

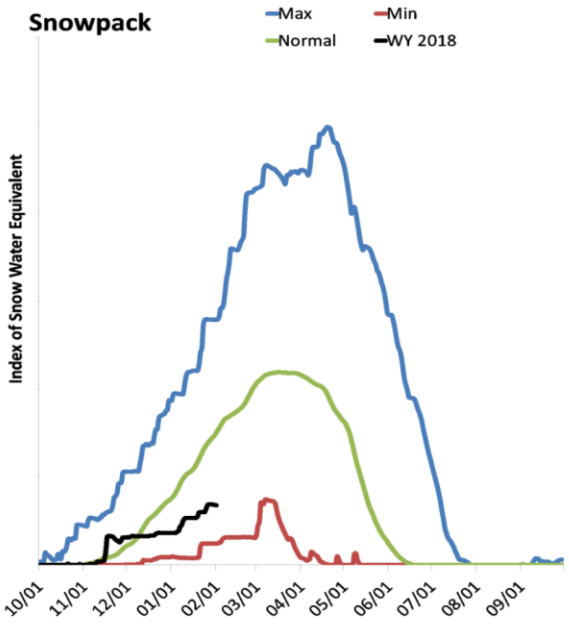
The average is based on the 1981-2010 reference period.

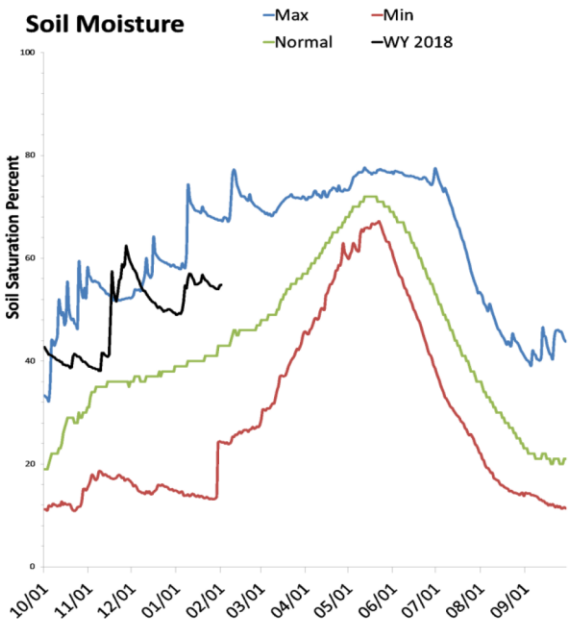
1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

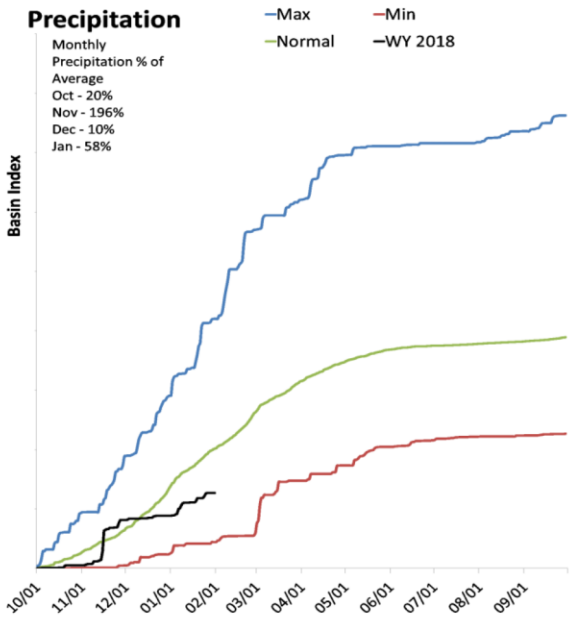
Carson River Basin

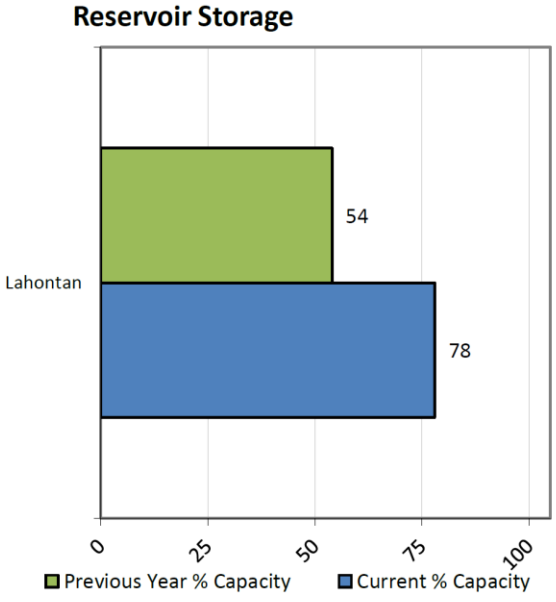
Including Information from the Water Supply Outlook Report for Nevada
(https://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/):

Snowpack in the Carson River Basin is much below normal at 45% of median, compared to 191% last year. Precipitation in January was much below average, which brings the seasonal accumulation (Oct-Jan) to 63% of average. Soil moisture is at 55% saturation, compared to 67% last year. Storage in Lahontan Reservoir is 74% of capacity , compared to 51% last year. Forecast streamflow volumes (Mar-Jul) are 56% and 59% of average for the East- and West Forks of the Carson River, respectively.









Carson River Basin (cont'd)

CARSON RIVER BASIN
Streamflow Forecasts - February 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point / Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
EF Carson R nr Gardnerville							
MAR-JUL	23	64	115	56	166	241	205
APR-JUL	20	54	100	54	146	213	186
WF Carson R at Woodfords							
MAR-JUL	2.2	22	35	59	48	68	59
APR-JUL	5.7	21	32	59	43	58	54

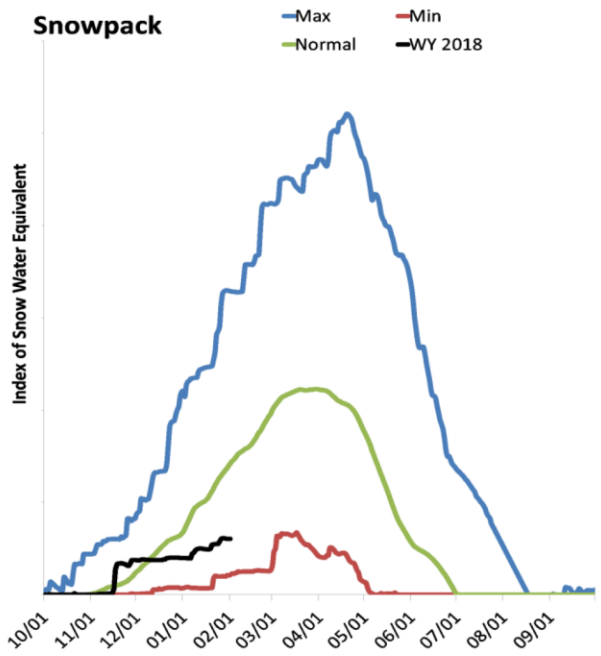
The average is based on the 1981-2010 reference period.

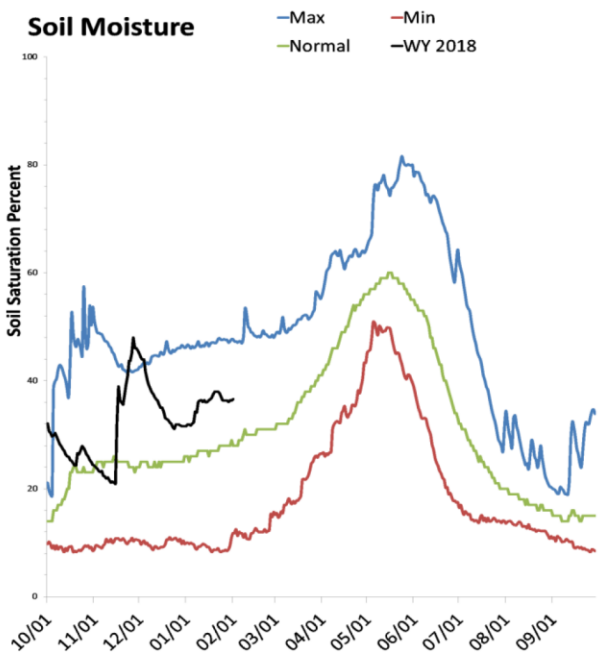
1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

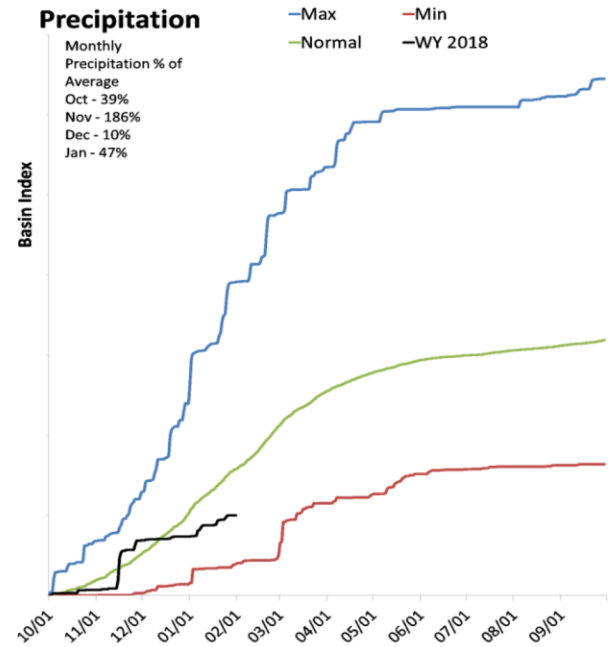
Walker River Basin

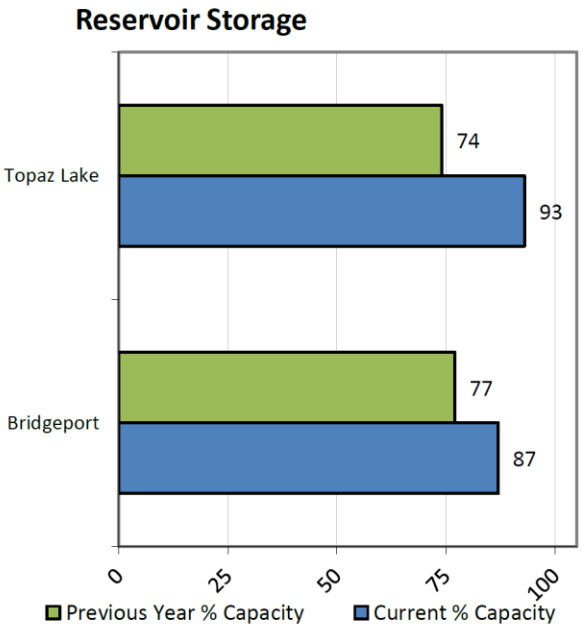
From the Water Supply Outlook Report for Nevada
(https://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/):

Snowpack in the Walker River Basin is much below normal at 41% of median, compared to 198% last year. Precipitation in January was much below average, which brings the seasonal accumulation (Oct-Jan) to 63% of average. Soil moisture is at 36% saturation, compared to 46% last year. Combined reservoir storage is 91% of capacity, compared to 75% last year. Forecast streamflow volumes range from 59% to 69% of average.









Walker River Basin (cont'd)

WALKER RIVER BASIN
Streamflow Forecasts - February 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point / Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
E Walker R nr Bridgeport							
MAR-AUG	4.7	25	46	59	67	99	78
APR-AUG	5.4	23	41	60	59	86	68
W Walker R bl L Walker R nr Coleville							
MAR-JUL	30	80	114	67	148	198	170
APR-JUL	20	71	105	65	139	190	162
W Walker R nr Coleville							
MAR-JUL	26	79	118	69	141	196	172
APR-JUL	24	74	108	66	142	192	163

The average is based on the 1981-2010 reference period.

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

Owens River Basin

OWENS RIVER BASIN
Streamflow Forecasts - February 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Owens R (DWR) APR-SEP			119	52			231

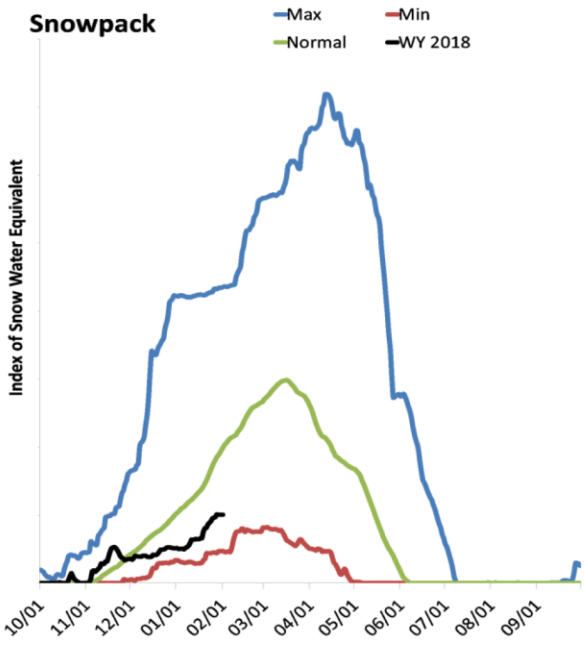
The average is based on the 1981-2010 reference period.

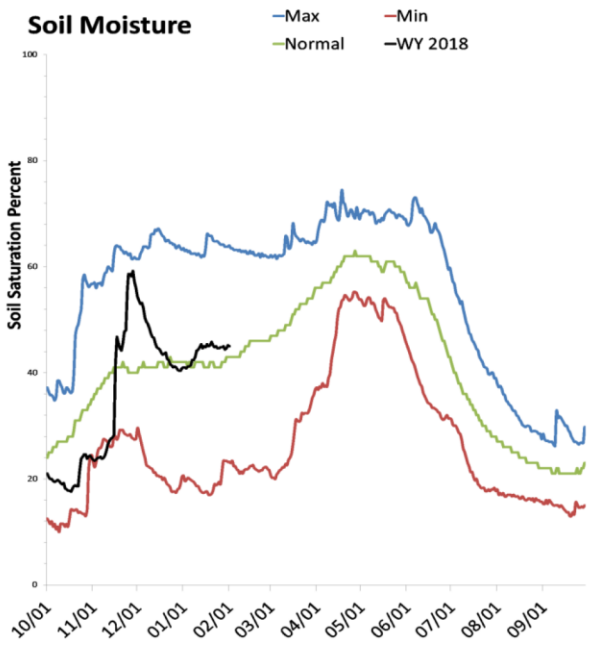
1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

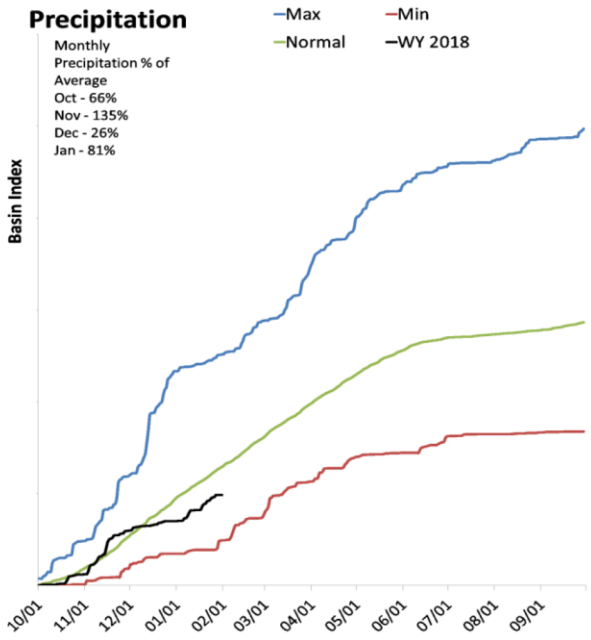
Northern Great Basin

From the Water Supply Outlook Report for Nevada
(https://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/):

Snowpack in the Northern Great Basin is much below normal at 46% of median, compared to 142% last year. Precipitation in January was below average, which brings the seasonal accumulation (Oct-Jan) to 76% of average. Soil moisture is at 41% saturation, compared to 46% last year. Forecast streamflow volumes (Apr-Jul) range from 21% to 55% of average.







Northern Great Basin (cont'd)

NORTHERN GREAT BASIN
Streamflow Forecasts - February 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point / Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Davis Ck (acre-ft)							
APR-JUL	1860	2930	4000	55	5450	8610	7233
APR-SEP	2230	3410	4560	57	6080	9310	7991
Eagle Ck nr Eagleville							
APR-JUL	0.3	0.5	0.9	21	2.0	3.7	4.3
Bidwell CK nr Ft. Bidwell							
APR-JUL	0.6	1.3	2.9	24	4.5	6.7	12.0

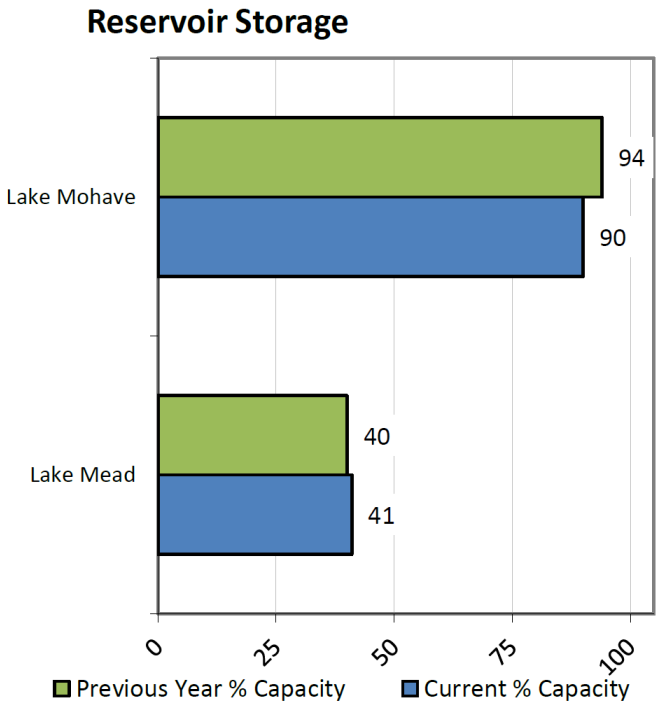
The average is based on the 1981-2010 reference period.

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on of management of upstream reservoirs and diversions

Lower Colorado River Basin

From the Water Supply Outlook Report for Nevada
(https://www.nrcs.usda.gov/wps/portal/nrcs/main/nv/snow/):

The forecast streamflow volume for Lake Powell Inflow (Apr-Jul) is 42% of average. Storage in Lake Mead is 41% of capacity, compared to 40% last year. Lake Mohave storage is 90% of capacity, compared to 94% last year.



COLORADO RIVER BASIN
Streamflow Forecasts - February 1, 2018

Forecast Exceedance Probabilities for Risk Assessment
Chance that actual volume will exceed forecast

Forecast Point Forecast Period	90% (KAF)	70% (KAF)	50% (KAF)	(% AVG.)	30% (KAF)	10% (KAF)	30 Yr Avg (KAF)
Lake Powell Inflow (2) APR-JUL	1240	2190	3000	42	3930	5530	7160

The average is based on the 1981-2010 reference period.

1) 90% and 10% exceedance probabilities are actually 95% and 5%
2) Forecasts are for unimpaired flows. Actual flow will be dependent on management of upstream reservoirs and diversions

How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

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California Water Supply Outlook Report

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